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| coal with swell | 29        |

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## Print Selection

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| <input checked="" type="checkbox"/> | GB1446071A | all     | all  | DWPI     |
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| <input checked="" type="checkbox"/> | CA1014932A | all     | all  | DWPI     |
| <input checked="" type="checkbox"/> | DE1571651B | all     | all  | DWPI     |

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cp3



4c07



gbloptr



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L5: Entry 20 of 29

File: DWPI

Mar 3, 1981

DERWENT-ACC-NO: 1981-21217D

DERWENT-WEEK: 198112

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TITLE: Coal liquefaction in the absence of liq. solvent - using coal particles swollen by pretreatment with fluid hydrogen-donor solvent

INVENTOR: LONG, R B

PATENT-ASSIGNEE: EXXON RES &amp; ENG CO (ESSO)

PRIORITY-DATA: 1978US-0935567 (August 21, 1978)

PATENT-FAMILY:

| PUB-NO       | PUB-DATE      | LANGUAGE | PAGES | MAIN-IPC |
|--------------|---------------|----------|-------|----------|
| US 4253937 A | March 3, 1981 | N/A      | 000   | N/A      |

INT-CL (IPC): C10B 57/08; C10G 1/00

ABSTRACTED-PUB-NO: US 4253937A

BASIC-ABSTRACT:

A process for the liquefaction of coal comprises (a) subjecting the coal to liquefaction, in the absence of a liq. phase solvent, in a liquefaction zone maintained at 371- 705 deg. C and 0-3000 (pref. 10-150) psig, (b) sepg. the effluent into a vapour-phase prod. and a solid residue, and (c) gasifying the solid residue with steam and an O2-contg. gas at 760-1093 deg. C to produce a H2-contg. gas.

The improvement comprises pretreating the coal, prior to the liquefaction step, by contact with a vapour-phase (pref.) or liq.-phase H2-donor solvent (I) at 150-350 (pref. 204- 310) deg. C and 10-150 psig for a time (pref. 10-100 mins.) sufficient for the coal to sorb at least part of (I) and swell with a weight increase of at least 3 wt.%.

The pretreatment increases the yield of coal liqs. in the liquefaction step.

ABSTRACTED-PUB-NO: US 4253937A

EQUIVALENT-ABSTRACTS:

DERWENT-CLASS: H09

CPI-CODES: H09-A01;

**WEST**

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L5: Entry 22 of 29

File: DWPI

Feb 10, 1981

DERWENT-ACC-NO: 1981-15428D

DERWENT-WEEK: 198109

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TITLE: Liquefaction of coal - after swelling by treatment with hydrogen-donor solvent vapour

INVENTOR: GORBATY, M L; LONG, R B ; VERNON, L W

PATENT-ASSIGNEE: EXXON RES &amp; ENG CO (ESSO)

PRIORITY-DATA: 1978US-0935568 (August 21, 1978)

PATENT-FAMILY:

| PUB-NO       | PUB-DATE          | LANGUAGE | PAGES | MAIN-IPC |
|--------------|-------------------|----------|-------|----------|
| US 4250014 A | February 10, 1981 | N/A      | 000   | N/A      |

INT-CL (IPC): C10B 53/00; C10B 57/08; C10G 1/00

ABSTRACTED-PUB-NO: US 4250014A

BASIC-ABSTRACT:

Prodn. of hydrocarbon oils from coal is carried out by (a) contacting particulate coal with a vapour-phase H-donor solvent at 150-350 deg.C and 0-150 psig for a time sufficient to swell the coal and increase its wt. by at least 3 (pref. 3-50)wt.%, and (b) subjecting the swollen coal to liquefaction in the presence of a liq. solvent.

Pretreatment step (a) increases the yield of coal liqs.

ABSTRACTED-PUB-NO: US 4250014A

EQUIVALENT-ABSTRACTS:

DERWENT-CLASS: H06 H09

CPI-CODES: H09-A01;

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LS: Entry 1 of 29

File: DWPI

Nov 4, 1997

DERWENT-ACC-NO: 1998-028191  
DERWENT-WEEK: 199803  
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TITLE: Coal liquefaction using catalyst in reduced amount - by hydrogenation in presence of transition metal catalyst in solvent capable of swelling coal

PATENT-ASSIGNEE: NIPPON KATAN EKIKA KK (NIKAN)

PRIORITY-DATA: 1996JP-0102477 (April 24, 1996)

## PATENT-FAMILY:

| PUB-NO        | PUB-DATE         | LANGUAGE | PAGES | MAIN-IPC   |
|---------------|------------------|----------|-------|------------|
| JP 09286987 A | November 4, 1997 | N/A      | 007   | C10G001/06 |

## APPLICATION-DATA:

| PUB-NO      | APPL-DATE      | APPL-NO        | DESCRIPTOR |
|-------------|----------------|----------------|------------|
| JP09286987A | April 24, 1996 | 1996JP-0102477 | N/A        |

INT-CL (IPC): B01J 31/04; C10G 1/06

ABSTRACTED-PUB-NO: JP09286987A

## BASIC-ABSTRACT:

Coal liquefaction is carried out by hydrogenating coal in the presence of a solvent and a catalyst. The catalyst comprises a transition metal cpd. soluble in an organic solvent capable of swelling coal. The catalyst is impregnated in coal as a soln. in the organic solvent to swell the coal, and the solvent is removed so that the catalyst is supported in the coal. Pref. the solvent has an equilibrium swelling value to the coal at 25 deg. C of at least 1.3.

ADVANTAGE - The method uses a convenient catalyst-supporting process, improves the efficiency of contact of the catalyst with reactive sites within coal and achieves a high liquefaction rate, or a high oil yield, with reduced amts. of the catalyst added.

ABSTRACTED-PUB-NO: JP09286987A

## EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.0/1

DERWENT-CLASS: H09

CPI-CODES: H09-A01;

**WEST**

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L5: Entry 5 of 29

File: DWPI

Jan 7, 1997

DERWENT-ACC-NO: 1997-115572

DERWENT-WEEK: 199711

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TITLE: Treatment of coal and mixt. of coal and coal tar and/or heavy oil - comprises obtaining slurry by mixing coal and coal tar and/or heavy oil, heating slurry to swell coal in slurry to obtain bojuntan and heating

PATENT-ASSIGNEE: NKK CORP (NIKN)

PRIORITY-DATA: 1995JP-0157476 (June 23, 1995)

## PATENT-FAMILY:

| PUB-NO        | PUB-DATE        | LANGUAGE | PAGES | MAIN-IPC   |
|---------------|-----------------|----------|-------|------------|
| JP 09003457 A | January 7, 1997 | N/A      | 027   | C10B055/02 |

## APPLICATION-DATA:

| PUB-NO      | APPL-DATE     | APPL-NO        | DESCRIPTOR |
|-------------|---------------|----------------|------------|
| JP09003457A | June 23, 1995 | 1995JP-0157476 | N/A        |

INT-CL (IPC): C10B 55/02; C10B 57/04; C10B 57/08; C10B 57/14; C10G 1/00; C10G 1/02; C10J 3/46; C10K 3/00; C10L 1/32

ABSTRACTED-PUB-NO: JP09003457A

## BASIC-ABSTRACT:

Reforming of coal comprises: (a) obtaining a slurry by mixing coal and coal tar and/or heavy oil; (b) heating the slurry to 150-350 deg. C to swell the coal in the slurry by using the coal tar and/or the heavy oil to obtain bojuntan; (c) heating the bojuntan to remove soft components; and (d) obtaining the reformed coal.

Also claimed is the gasification of coal and coal tar and/or heavy oil which comprises: (a) obtaining a slurry by mixing coal and coal tar and/or heavy oil; (b) heating the slurry to 150-350 deg. C to swell the coal in the slurry by using the coal tar and/or the heavy oil to obtain bojuntan; (c) heating the bojuntan to remove soft components; (d) heating the residual bojuntan at up to 600 deg. C to remove soft components; (e) heating the residual bojuntan remaining in (d) at up to 1200 deg. C to heat and decompose the bojuntan to obtain a high-concn. hydrogen gas; and (f) gasifying a residual carbon portion remaining in (e) in the presence of a gasifying agent.

USE - Used to reform coal and gasify coal, coal tar and/or heavy oil.

ADVANTAGE - The coal is reformed by using inexpensive coal tar and/or heavy oil without using an expensive high-pressure and high-temp. facility, expensive hydrogen, and a hydrogen donor solvent. The gasification of the coal and the coal tar and/or the heavy oil yields high-calorie gas and a high-concn. hydrogen gas. Decomposing the residual carbon portion efficiently, economically yields medium-calorie gas.

ABSTRACTED-PUB-NO: JP09003457A

## EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.0/11

DERWENT-CLASS: H09

CPI-CODES: H09-A; H09-C;

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L5: Entry 7 of 29

File: DWPI

Sep 5, 1995

DERWENT-ACC-NO: 1995-376058  
DERWENT-WEEK: 199549  
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TITLE: Efficient and economical treatment of coal to provide highly calorific gas  
- by mixing with coal tar and/or heavy oil to form slurry, then heating and  
cracking.

PATENT-ASSIGNEE: NKK CORP (NIKN)

PRIORITY-DATA: 1993JP-0331755 (December 27, 1993), 1993JP-0329210 (December 27,  
1993), 1993JP-0331754 (December 27, 1993)

## PATENT-FAMILY:

| PUB-NO        | PUB-DATE          | LANGUAGE | PAGES | MAIN-IPC   |
|---------------|-------------------|----------|-------|------------|
| JP 07233380 A | September 5, 1995 | N/A      | 012   | C10L001/32 |

## APPLICATION-DATA:

| PUB-NO      | APPL-DATE         | APPL-NO        | DESCRIPTOR |
|-------------|-------------------|----------------|------------|
| JP07233380A | December 27, 1994 | 1994JP-0324356 | N/A        |

INT-CL (IPC): C10B 57/04; C10B 57/08; C10L 1/32

ABSTRACTED-PUB-NO: JP07233380A  
BASIC-ABSTRACT:

Treatment of coal comprises mixing powdered coal with coal tar and/or heavy oil to prepare slurry, heating the slurry to 100-400 deg.C to swell the coal in the slurry with the tar and/or oil and thereby obtain swelled coal and heating the swelled coal. Also claimed is the prepn. of highly calorific gas comprising the first and second processes and a third process of cracking the thermally swelled coal to obtain the gas.

ADVANTAGE - The methods are efficient and economical and provide highly calorific gas, e.g, 5600 kcal/Nm3.

ABSTRACTED-PUB-NO: JP07233380A  
EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.0/3

DERWENT-CLASS: H09  
CPI-CODES: H09-H;



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L5: Entry 14 of 29

File: DWPI

May 5, 1988

DERWENT-ACC-NO: 1988-121730  
DERWENT-WEEK: 199713  
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TITLE: Deep cleaned coal prodn. - by swelling in an amine solvent before chemical leaching of fine particles

INVENTOR: HO, K K

PATENT-ASSIGNEE: BABCOCK &amp; WILCOX CO (BABW)

PRIORITY-DATA: 1986US-0925182 (October 31, 1986)

## PATENT-FAMILY:

| PUB-NO        | PUB-DATE          | LANGUAGE | PAGES | MAIN-IPC   |
|---------------|-------------------|----------|-------|------------|
| GB 2196644 A  | May 5, 1988       | N/A      | 005   | N/A        |
| KR 9506556 B1 | June 16, 1995     | N/A      | 000   | C10L009/02 |
| JP 63122792 A | May 26, 1988      | N/A      | 000   | N/A        |
| DE 3736928 A  | July 7, 1988      | N/A      | 000   | N/A        |
| US 4787918 A  | November 29, 1988 | N/A      | 004   | N/A        |
| JP 89037439 B | August 7, 1989    | N/A      | 000   | N/A        |

## APPLICATION-DATA:

| PUB-NO       | APPL-DATE          | APPL-NO        | DESCRIPTOR |
|--------------|--------------------|----------------|------------|
| GB 2196644A  | October 29, 1987   | 1987GB-0025316 | N/A        |
| KR 9506556B1 | September 25, 1987 | 1987KR-0010611 | N/A        |
| JP63122792A  | October 28, 1987   | 1987JP-0270578 | N/A        |
| DE 3736928A  | October 30, 1987   | 1987DE-3736928 | N/A        |
| US 4787918A  | October 31, 1986   | 1986US-0925182 | N/A        |
| JP89037439B  | October 28, 1987   | 1987JP-0270518 | N/A        |

INT-CL (IPC): B01D 11/02; C10L 5/00; C10L 9/00; C10L 9/02

ABSTRACTED-PUB-NO: GB 2196644A

## BASIC-ABSTRACT:

Deep cleaned coal is produced by (a) providing air-dried coal of particle size 600 micron (minus 28 mesh) or finer; (b) immersing in an organic solvent comprising butylamine, propylamine or ethylene diamine to form a mixt. of solids content not more than 40wt.%, for sufficient time to swell and induce natural fracturing of the coal; (c) distilling the mixt. to recover the solvent; (d) subjecting the swelled coal to leaching under ambient conditions with a 10-20% aq. hydrogen peroxide soln. contg. 1-2% sulphuric acid; and (e) leaching with an aq. soln. contg. 3-6% ammonium hydrogen fluoride and 2-3% nitric or hydrochloric acid.

USE/ADVANTAGE - Deep cleaned coal is of use as a utility energy source that meets air quality requirements without use of flue gas desulphurisation. It is also of use in oil or gas fired units. Low ash content minimises slagging, fouling and erosion of heat transfer surfaces. Use of the coal swelling step (b) permits further processing under mild conditions with low energy requirement.

ABSTRACTED-PUB-NO: US 4787918A  
EQUIVALENT-ABSTRACTS:

Deep cleaned coal is produced by (A) immersing air dried coal having a particle size fraction 6.3 mm x 0 mesh into butylamine, propylamine or ethylene diamine up to a solids content of 40 wt% for a sufficient time to swell and to naturally fracture the coal; (b) recovering the organic solvent and grinding the swelled coal to a particle size not above 28 mesh; (C) leaching the swelled coal with water contg. 10-20% H<sub>2</sub>O<sub>2</sub> and 1-2% H<sub>2</sub>SO<sub>4</sub> to remove residual pyrites from the coal; and (D) leaching the swelled coal with water contg. 3-6% NH<sub>4</sub>F.HF and 2-3% HNO<sub>3</sub> or HCl to remove residual ash from the coal. The swelled and leached coal is pref. (E) heated to 390 deg.C under a mixt. of N<sub>2</sub> and H<sub>2</sub> for a sufficient time to form hydrodesulphurised coal.

The swelled coal is rpef. physically separated prior to leaching to remove most of the liberated ash mineral impurities to save chemicals. ADVANTAGE - Shorter process effectively removes S. and loss of volatiles and heat is avoided. (4pp)

CHOSEN-DRAWING: Dwg.0/0

DERWENT-CLASS: E16 H09  
CPI-CODES: E10-B01E; E10-B04D; E31-B03D; E31-E; E31-F05; E31-H05; E32-A04; H09-H;

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L5: Entry 15 of 29

File: DWPI

Oct 21, 1986

DERWENT-ACC-NO: 1986-298260

DERWENT-WEEK: 198645

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TITLE: Removing ash and sulphur from coal by treating with alcohol - to increase its permeability, and simultaneously or subsequently leaching with dilute acid, to reduce ash content

INVENTOR: MOREAU, E J; SCHAPIRO, N

PATENT-ASSIGNEE: RESOURCE ENG INC (RESON)

PRIORITY-DATA: 1984US-0654498 (September 26, 1984)

## PATENT-FAMILY:

| PUB-NO       | PUB-DATE         | LANGUAGE | PAGES | MAIN-IPC |
|--------------|------------------|----------|-------|----------|
| US 4618346 A | October 21, 1986 | N/A      | 005   | N/A      |

## APPLICATION-DATA:

| PUB-NO      | APPL-DATE          | APPL-NO        | DESCRIPTOR |
|-------------|--------------------|----------------|------------|
| US 4618346A | September 26, 1984 | 1984US-0654498 | N/A        |

INT-CL (IPC): C10L 1/00

ABSTRACTED-PUB-NO: US 4618346A

## BASIC-ABSTRACT:

Process for removing ash and sulphur from coal includes: (i) wetting it with a soln. of a 1-4C alcohol sufficiently to swell the coal's pores and optimise its permeability; and (ii) leaching it with a mineral acid; the temp. in both steps being below 100 deg.C.

Alcohol is pref. MeOH. The acid is pref. dil. HCl and/or HF (pref. concn. 0.5-2N).

The coal pref. has inherent ash concn. 0.25-3 wt.%, and is first comminuted, pref. to -30 mesh (subbituminous coal) or -40 mesh (bituminous coal). Stage (i) may be effected with 10 ml MeOH per 100g coal. Or stages (i) and (ii) may be combined, by treatment with aq. acid contg. 0.3-1.2 wt.% MeOH, at e.g. 80-100 deg.C. The mixt. of acid and coal contains 12.5-50 wt.% solids. The acid-treated coal may be water-washed and the remaining acidity then removed by treatment with NH<sub>4</sub>OH or H<sub>3</sub>BO<sub>3</sub>. The coal can then be further water-washed, filtered and dried. The recovered spent acid can be regenerated.

USE/ADVANTAGE - Processed coal has a reduced content of useless material which must be transported, and it causes less pollution when burnt. The ash content can be reduced to below 1 wt.%, but the combustibility, manageability and surface chemistry characteristics are largely unchanged. The process is economically practical. The reagents may be recovered and reused.

ABSTRACTED-PUB-NO: US 4618346A

## EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.0/1

DERWENT-CLASS: H09 J01

**WEST**

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LS: Entry 16 of 29

File: DWPI

Feb 21, 1984

DERWENT-ACC-NO: 1984-062496

DERWENT-WEEK: 198410

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TITLE: Fluidised-bed catalytic gasification of caking coal - with controlled pre-oxidn. to increase bed density

INVENTOR: AQUINO, D C; DUNKLEMAN, J J ; GOUKER, T R ; WASSELHOFT, R D

PATENT-ASSIGNEE: EUKER C A (EUKI)

PRIORITY-DATA: 1983US-0475209 (March 21, 1983), 1981US-0301787 (September 14, 1981)

## PATENT-FAMILY:

| PUB-NO       | PUB-DATE          | LANGUAGE | PAGES | MAIN-IPC |
|--------------|-------------------|----------|-------|----------|
| US 4432773 A | February 21, 1984 | N/A      | 011   | N/A      |

## APPLICATION-DATA:

| PUB-NO      | APPL-DATE      | APPL-NO        | DESCRIPTOR |
|-------------|----------------|----------------|------------|
| US 4432773A | March 21, 1983 | 1983US-0475209 | N/A        |

INT-CL (IPC): C10J 3/54

ABSTRACTED-PUB-NO: US 4432773A

## BASIC-ABSTRACT:

Gasification of caking coal (or other carbonaceous solids which tend to agglomerate and swell at high temps.) is effected by (a) contacting the coal with an aq. soln. of alkali metal catalyst components (I) to impregnate the coal with (I); (b) oxidising the coal with an O<sub>2</sub>-contg. gas at a temp. below 250 deg. C; and (c) gasifying the coal in a fluidised-bed gasifier in which the bed density is maintained above 160 kg/cubic m by controlling the conditions in step (b).

Controlled oxidn. in step (b) not only inhibits caking but also counteracts the tendency of the gasifier bed density to decrease at high pressures.

ABSTRACTED-PUB-NO: US 4432773A

## EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.0/4

DERWENT-CLASS: H09

CPI-CODES: H09-C; N01-A01;

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L5: Entry 16 of 29

File: DWPI

Feb 21, 1984

DERWENT-ACC-NO: 1984-062496

DERWENT-WEEK: 198410

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TITLE: Fluidised-bed catalytic gasification of caking coal - with controlled pre-oxidn. to increase bed density

INVENTOR: AQUINO, D C; DUNKLEMAN, J J ; GOUKER, T R ; WASSELHOFT, R D

PATENT-ASSIGNEE: EUKER C A (EUKI)

PRIORITY-DATA: 1983US-0475209 (March 21, 1983), 1981US-0301787 (September 14, 1981)

## PATENT-FAMILY:

| PUB-NO       | PUB-DATE          | LANGUAGE | PAGES | MAIN-IPC |
|--------------|-------------------|----------|-------|----------|
| US 4432773 A | February 21, 1984 | N/A      | 011   | N/A      |

## APPLICATION-DATA:

| PUB-NO      | APPL-DATE      | APPL-NO        | DESCRIPTOR |
|-------------|----------------|----------------|------------|
| US 4432773A | March 21, 1983 | 1983US-0475209 | N/A        |

INT-CL (IPC): C10J 3/54

ABSTRACTED-PUB-NO: US 4432773A

## BASIC-ABSTRACT:

Gasification of caking coal (or other carbonaceous solids which tend to agglomerate and swell at high temps.) is effected by (a) contacting the coal with an aq. soln. of alkali metal catalyst components (I) to impregnate the coal with (I); (b) oxidising the coal with an O<sub>2</sub>-contg. gas at a temp. below 250 deg. C; and (c) gasifying the coal in a fluidised-bed gasifier in which the bed density is maintained above 160 kg/cubic m by controlling the conditions in step (b).

Controlled oxidn. in step (b) not only inhibits caking but also counteracts the tendency of the gasifier bed density to decrease at high pressures.

ABSTRACTED-PUB-NO: US 4432773A

## EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.0/4

DERWENT-CLASS: H09

CPI-CODES: H09-C; N01-A01;

**WEST**

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L5: Entry 17 of 29

File: DWPI

Aug 25, 1982

DERWENT-ACC-NO: 1982-72619E  
DERWENT-WEEK: 198235  
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TITLE: Two=stage hydrocracking of coal in oil slurry - with multistage direct and indirect heat exchange between reactants and prods.

INVENTOR: KUERTEN, H; PUESTEL, H ; SCHULZ, R ; WEBER, G

PATENT-ASSIGNEE: BASF AG (BADI)

PRIORITY-DATA: 1981DE-3105030 (February 12, 1981)

## PATENT-FAMILY:

| PUB-NO       | PUB-DATE           | LANGUAGE | PAGES | MAIN-IPC |
|--------------|--------------------|----------|-------|----------|
| EP 58327 A   | August 25, 1982    | G        | 008   | N/A      |
| DE 3105030 A | September 2, 1982  | N/A      | 000   | N/A      |
| US 4473460 A | September 25, 1984 | N/A      | 000   | N/A      |

DESIGNATED-STATES: BE DE FR GB IT NL

CITED-DOCUMENTS: DE 704232; No-SR.Pub ; WO 8001285

## APPLICATION-DATA:

| PUB-NO      | APPL-DATE        | APPL-NO        | DESCRIPTOR |
|-------------|------------------|----------------|------------|
| US 4473460A | January 29, 1982 | 1982US-0344016 | N/A        |

INT-CL (IPC): C10G 1/08

ABSTRACTED-PUB-NO: EP 58327A

## BASIC-ABSTRACT:

In a 2-stage process for mfr. of oils from coal by hydrocracking, heat-exchange between the feed stream to first (liq. phase) stage and the prods. is improved. The slurried feed mixt. of coal, catalyst and heavy oil is now preheated to 380-440 deg.C in at least 3 stages. Because coal swells in the oil at 290-340 deg.C and so causes fouling of tubular heat exchangers, heating over this range is by direct addn. of liq. streams (contg. some solid) from prod. sepn.

External heating of the reactor feed stream (expensive, and giving fouling problems) is only required at startup. Less prod. heat is lost to cooling water. Deposits in heat exchangers are reduced.

ABSTRACTED-PUB-NO: US 4473460A

## EQUIVALENT-ABSTRACTS:

The continuous prod. of hydrocarbon oils by mixing finely milled coal with catalyst and preparing a slurry in oil. The slurry is then hydrogenated at 380-440 deg.C and a pressure of 200-700 bars. The process is improved by transferring the heat from the end prods. separately to the incoming fresh slurry in at least 3 stages and directly heating the coal/oil mixt. to 290-340 deg.C by adding to this portion part of the hot hydrogenation residue and all of the condensates obtd. in the 390-410 deg.C range. Pref. the initial coal/oil/catalyst slurry contains 38-58% solids.

ADVANTAGE - The process can operate on a continuous basis without external heat and deposits within heat exchanger systems are avoided. (4pp)

DERWENT-CLASS: H09  
CPI-CODES: H09-A01;

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L5: Entry 24 of 29

File: DWPI

Oct 26, 1977

DERWENT-ACC-NO: 1977-76294Y  
DERWENT-WEEK: 197743  
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TITLE: Briquettes prodn. from high-volatile weakly caking coal - after controlled heating in presence of oxygen to reduce swelling

PATENT-ASSIGNEE: COAL IND PATENTS LTD (COAL)

PRIORITY-DATA: 1975GB-0028255 (July 4, 1975)

## PATENT-FAMILY:

| PUB-NO       | PUB-DATE         | LANGUAGE | PAGES | MAIN-IPC |
|--------------|------------------|----------|-------|----------|
| GB 1489690 A | October 26, 1977 | N/A      | 000   | N/A      |

INT-CL (IPC): C10L 5/02

ABSTRACTED-PUB-NO: GB 1489690A  
BASIC-ABSTRACT:

Prodn. comprises first pretreating a low-rank weakly caking high-volatile coal in fine particulate form by heating in the presence of O<sub>2</sub> at 200 degrees - 350 degrees C a temp. below that at which swelling normally occurs. Heating is continued for a time sufficient to reduce the tendency of the coal to swell when subsequently heated above the normal swelling temp.

The pretreated coal is then heated to 600-900 degrees C and mixed with a caking coal to give a mixt. with a temp. of 400-500 degrees C. The mixt is then briquetted without the addn of a binder and without a significant drop in temp.

The process allows high-volatile coal to be used instead of anthracite and gives a prod. of intermediate density i.e. of lower density than prods. obtd. using anthracite but of higher density than prods. obtd. using untreated high- volatile coal.

ABSTRACTED-PUB-NO: GB 1489690A  
EQUIVALENT-ABSTRACTS:

DERWENT-CLASS: H09  
CPI-CODES: H09-F;



**WEST**☐ **Generate Collection**

L5: Entry 25 of 29

File: DWPI

Aug 2, 1977

DERWENT-ACC-NO: 1977-57607Y  
DERWENT-WEEK: 197733  
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TITLE: Activated coal carbon prodn. - from bituminous, lignite or brown coal by  
crushing and leaching processes

PATENT-ASSIGNEE: JONES C T (JONEI)

PRIORITY-DATA: 1975CA-0228069 (May 29, 1975)

## PATENT-FAMILY:

| PUB-NO       | PUB-DATE       | LANGUAGE | PAGES | MAIN-IPC |
|--------------|----------------|----------|-------|----------|
| CA 1014932 A | August 2, 1977 | N/A      | 000   | N/A      |

INT-CL (IPC): C01B 0/01

ABSTRACTED-PUB-NO: CA 1014932A  
BASIC-ABSTRACT:

Prodn. of activated C for use in air, water or liquid waste treatment comprises  
crushing bituminous, lignite or brown coal and screening to give particles which  
will all pass a 3 inch mesh.

The coal particles are subjected to a number of wetting and drying cycles, so that  
the coal swells on wetting and cracks on drying, giving a prod. with higher  
internal and external surface area.

Contaminants are leached out from the expanded coal particles with suitable  
solvents to give a prod. with greater adsorptive capacity and a more open and  
porous structure. The coal is then removed, dried and screened to give particles  
which will pass a 3 inch mesh and be contained b a 1/4 inch mesh.

The coal sizings from this step are dried and pulverised to give a prod. of  
maximum size passing through a standard screen of 200 mesh (0.0029 inch) with >80%  
passing a 325 mesh screen (0.0017 inch). The screened particles are leached with  
hot or cold H2O steam, or an acid, or a base, or a base then an acid. They are  
then washed and dried.

ABSTRACTED-PUB-NO: CA 1014932A  
EQUIVALENT-ABSTRACTS:

DERWENT-CLASS: D15 E36 J01  
CPI-CODES: D04-A01F; D04-B; D05-A; E31-N03; J01-D01; J01-E03;

**WEST****End of Result Set**

Generate Collection

L5: Entry 29 of 29

File: DWPI

DERWENT-ACC-NO: 1972-77284T  
DERWENT-WEEK: 197249  
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TITLE: Preformed metallurgical coke mfr - by partial oxidn pre-forming without binder, surface oxidn and coking

PATENT-ASSIGNEE: KOPPERS GMBH HEINRICH (KOPS)

PRIORITY-DATA: 1965US-0430360 (February 4, 1965)

**PATENT-FAMILY:**

| PUB-NO       | PUB-DATE | LANGUAGE | PAGES | MAIN-IPC |
|--------------|----------|----------|-------|----------|
| DE 1571651 B |          | N/A      | 000   | N/A      |

INT-CL (IPC): C10B 57/08

ABSTRACTED-PUB-NO: DE 1571651B

**BASIC-ABSTRACT:**

The coke is made from swelling coal by (A) reducing to around 0.045-0.5 mm. and drying to a surface moisture content of around 1% (B) separating particles below 0.045 mm. (C) oxidising in a nitrogen stream contng. oxygen, at below the softening pt. until the swell value is reduced to about 2.5, (D) raising the temp. to max. fusibility of the coal to reduce volatile content to around 25%, (E) preforming to required size, (F) oxidising the surface in an oxygen-contng. atmos. at 350 degrees-450 degrees C. and (G) coking in a reducing atmos. at around 1100 degrees C. (C) prevents softening and cohesion of the particles during (D), and is carried out in a fluidised bed at around 225 degrees C. using N2 contng. 5-9% O2. The oxidised layer produced in (F) is thin, e.g. 0.25 mm. The process can be operated continuously and gives a very solid and dense coke briquette from a wide range of coal types without using a binder.

ABSTRACTED-PUB-NO: DE 1571651B

**EQUIVALENT-ABSTRACTS:**

DERWENT-CLASS: H09

CPI-CODES: H09-A; H09-F;